



A DOCPHOENIX

OUTGOING DOCUMENT INDEX SHEET

OUTGOING

CTMS
Miscellaneous Office Action
IMIS
Miscellaneous Internal Document
NRES
Letter Restarting Period for Response

1449
Signed 1449

892
892

ABN
Abandonment

APDEC
Board of Appeals Decision

APEA
Examiner Answer to Appeal Brief

CRFR
Letter Requiring CRF

CTAV
Count Advisory Action

CTEQ
Count Ex parte Quayle

CTFR
Count Final Rejection

CTNF
Count Non-Final

CTRS
Count Restriction

EXIN
Examiner Interview

FOR
Foreign Reference

M903
DO/EO Acceptance

M905
DO/EO Missing Requirement

OUTGOING

NFDR
Formal Drawing Required

NOA
Notice of Allowance

NPL
Non-Patent Literature

PEFN
Pre-Exam Formalities Notice

PETDEC
Petition Decision

ANE.I
After Final or 312 Amendment

PGEA.G
Petition Decision Express ABN

XRUSH
TC Resp. to Printer Query

PTO INTERNAL

CLMPTO
PTO Prepared Complete Claim Set

IIFW
File Wrapper Issue Information

SRNT
Examiner Search Notes

SRFW
File Wrapper Search Info

SEQREQ
Sequence Problem Att. from Examiner

CDCHECK
Compact Disk Review Checklist

9/15/03



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/792,078	03/03/2004	Yong Shen	42085-00031USD2	4219

7590 07/23/2004
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EXAMINER

MILLER, BRIAN E

ART UNIT PAPER NUMBER

2652

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/792,078	Applicant(s) SHEN ET AL.	
	Examiner Brian E. Miller	Art Unit 2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>07/20/04</u> . | 6) <input type="checkbox"/> Other: ____. |

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This is a DIV of 10/317,878 which is a DIV of 09/265,083 and claims 1-10 are pending.

Information Disclosure Statement

1. With respect to the IDS filed 6/17/04, the Examiner notes that US Patent to Okamoto et al (5,108,037) has not been considered since it is directed to a "Fuel Injection Valve" which is no way relevant to the presently claimed invention.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first and second conductive layer comprising "a longitudinal bias layer and a lead layer", as recited in claims 6 & 7, and the SAL layer comprising "a magnetically soft film layer pinned by antiferromagnetic films", as recited in claim 10, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

3. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The

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replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. Claims 1-5, 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Mimura (US 5,761,010). Mimura discloses an MR head, as shown in at least FIG. 3E, including: a MR layer 24 having a first and second end; a SAL layer 22 having a first and second end; an insulating layer 23 of Al₂O₃ (for example) arranged between the MR and SAL layers; first and second conductive layers 28, each contacting electrically both the MR layer and the SAL element at one end (see Fig. 5A); the width of the SAL extends beyond the active region of the MR layer, the MR layer supporting a first current path (through the active region of the MR element-re claim 2) between the first and second conductive layers (also shown in FIG. 5A), the SAL 22 supporting a second current path between the first and second conductive layers; wherein the second current path is substantially longer than the first current path (due to the extension portion of the conductive layers); (as per claim 3) wherein the first and second conducting layers have an

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extending portion on the top surface of the MR layer, such that an active region of the MR element is formed between the two conducting layers (sense region "S"); (as per claim 4) wherein the thickness of the MR layer is more than 50 but less than 400 angstroms, e.g., 200 angstroms; (as per claim 5) it is further considered that since Mimura teaches all of the elements as set forth in claim 1 and the SAL layer is "less than 500 angstroms", e.g., 200 angstroms (col. 7, line 65) it is at least inherent that the moment ratio would fall into the 0.6 to 1.0 range as set forth in the claim; (as per claim 9) wherein the insulating layer is formed of Al_2O_3 (col. 7, line 66)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 6-8, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mimura. For a description of Mimura, see the rejection, *supra*.

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Mimura remains silent as to the claimed (a) thickness of the insulating spacer layer, i.e., being between 50 and 200 angstroms (re claim 8); (b) the conductive layer comprising a longitudinal bias layer and a lead layer (re claims 6-7); and (c) the SAL layer being pinned by antiferromagnetic films (only one is shown-re claim 10).

With respect to (a) above and the film thickness of the insulation layer, the modifications of specific thickness of a particular layer would have been considered well within a skilled artisan's knowledge. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have decreased the thickness of the insulation layer appropriately.

The motivation would have been: lacking any unobvious or unexpected results, changing the thickness of layer(s) in a MR head would have resulted through the course of routine engineering optimization/experimentation, e.g., so as to form a thinner structure. Moreover, absent a showing of criticality, the relationships set forth in claim 8 is considered to be within the level of ordinary skill in the art.

Additionally, the law is replete with cases in which the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range(s); see *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions; see *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir.

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1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

With respect to (b) and (c), i.e., the conductive layer comprises a longitudinal bias layer and a lead layer; and the SAL layer being a bi-layer structure, Official Notice is taken that these respective structures are notoriously old and well known in the prior art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided such a conductive bi-layer and/or an SAL tri-layer structure to the MR head of Mimura.

The motivation would have been: as these structures are well known, providing them to the MR head of Mimura would have resulted through routine engineering and optimization of a skilled artisan.

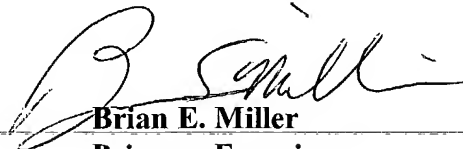
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (703) 308-2850. The examiner can normally be reached on M-TH 7:15am-4:45pm (and every other friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brian E. Miller
Primary Examiner
Art Unit 2652

Bem
July 21, 2004